

Historical Impacts on Use and Management of Natural Resources in the Rainforest Margins of Central Sulawesi

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Abstract

The assumption for the present research paper is that the analysis of the historical settlement and population development with its impacts on land use and resource management provides the basis to understand the actual distribution patterns and the contemporary cultural and ethnical aspects of natural resource management in the research area. The region in the surroundings of the Lore Lindu National Park in Central Sulawesi, Indonesia, is mainly cultivated during the last hundred years. In terms of cultural landscape, intensive land use and resource management, the tropical rainforest margin area around the park is to be estimated as young. But pre-colonial and colonial impacts on population and settlement expansion as well as rising mobility processes after independence have left their footsteps on the physiognomy of the landscape and in the structure of the society who determines the resource management. That is why the paper focuses on the processes of resource management in the course of the historical development and the increasing pressure on the margins of the tropical rainforest in Sulawesi. The principal objective is to give a profound knowledge on cultural and demographic influences, their consequences and differentiation on regional and local level.

1. Introduction

The use and management of natural resources in the rainforest margins of Central Sulawesi has become a focus of national and international research projects very recently. That is because the area was always located in a political and economic periphery and the pressure on the rainforest resources was relatively low. But nowadays the awareness of resource management of tropical rainforests has risen. Deforestation has got a worldwide attention mainly because of its climatic relevance. Also a growing population pressure in Indonesia accompanied by an actual political and economic transformation process intensified the impacts on the resources in Central Sulawesi. Especially during the last two decades the migration into the region has increased and strengthened the pressure on the access to land. But the consequences for the spatial structures and population patterns in the region are diverse. The regional laying of the foundations for the cultural landscape happened much earlier. These historically grown patterns of population and settlement structure lead to different attitudes of today's resource management and effects on land use in the region. The reflection of the processes, which show the way to a local differentiation of resource

management around the Lore Lindu National Park, is stressed in this paper and will be exemplified with micro studies on village level. The paper focuses on the impacts on the cultural landscape during different historical and political epochs of the last century and reflects the demographic development as well as the land use changes in the region.

Over time, the cultural landscape becomes incredibly complex with each “introductions of a different culture” in an area, a rejuvenation of the cultural landscape sets in, or a new landscape is superimposed on remnants of an older one. The accreted layers of the cultural landscape could therefore be peeled back by an attentive geographer to determine exactly “cultural history in its regional articulation” (Mitchell 2000). So, the first step is to trace back the historical development of settlements and the ethnic structure of the local people in the region. The aim is to reconstruct phases of continuity and phases of change and to identify the external and internal cultural influences for different time phases in cross-sections. Therefore, political impacts caused by different phases of Indonesian history (i.e. colonial rule, independence) are reflected. Against this background the actual patterns of population density, settlement and population structure of the region are examined. As one of the most important parts of the demographic analysis, migration flows and its motives for different historical phases are compiled and differentiated for the ethnic groups. In general, the local population, which is highly divergent, can be divided into local groups and migrant groups. For these groups traditional values and attitudes as well as mobility patterns are worked out in case studies.

The study of the cultural landscape of Central Sulawesi is linked with genesis and therefore always comprises a historical (time) and a regional (space) component and represents an original geographical field of research. The cultural landscape of Central Sulawesi has no long-standing history of scientific research. The Dutch colonialists, who influenced the Indonesian archipelago from 1602 to 1942, largely ignored this region for centuries. When they did station colonial officials in Sulawesi at the beginning of the 20th century, the short interval of their presence (1905 to 1942) however left a legacy of enormous structural modifications to the cultural landscape. These effects were all carried out under the pretext of a so-called ethical policy. Post-colonial development of the region was thus shaped by Dutch colonial interventions, which provide a basis for explaining structures and processes of recent spatial settings (Kreisel et al 2002).

2. The theoretical approach on cultural landscape

The basis for the concept of cultural geography used here to explain the shape of the landscape around the Lore Lindu National Park relies on the classical approach on “The Morphology of Landscape” by Carl Oscar Sauer (1925 and 1963) where “the natural landscape is being subject to transformation at the hands of man, the last and for us [geographers] the most important morphological factor. By his culture he makes use of the natural forms, in many cases alters them, in some destroys them” (Sauer 1963: 341). Sauer underlines the importance of the “...agency of man on earth”. He writes that “the cultural landscape is fashioned from a natural landscape by a culture group. Culture is the agent, the natural area is the medium, and the cultural landscape the result. The natural landscape is very

important for it supplies the materials out of which the cultural landscape is formed. The shaping force, however, lies in the culture itself” (Sauer 1963: 343). Sauer forcefully reverses environmental determinism of the cultural landscape, because it is “... derived from the mind of man, not imposed by nature, and hence are cultural expressions”. The cultural landscape is therefore an *effect*, and culture (working in, with, and against nature) is a cause of what we see in any scene upon which we look.

Cultural development and transformation, including conquest of indigenous peoples by imperial power like in Central Sulawesi, constantly created and recreated the places and landscapes in which people lived. The problem of the approach is, that if placing culture as an agent, it tends to abstract cultural constructions and it tends to divorce them from their social and material environment. Those constructions are usually regarded as entities with independent existence and causative power. Its explanation is based on the transcendental foundation, and tending to essentialise it, that “culturalism” approach frequently fails to take into account a wider social context in which varying different constructions are produced and stated.

In Germany the ideas of Schlüter (1928) on cultural landscape are similar to the concept of Sauer, but he has an even more physiological focus of the morphology of the landscape and the basis are the visible materialistic objectives. The classical theoretical formalistic and genetic approaches of landscape analysis was extended by Bobek (1948) and Bobek and Schmithüsen (1949) with the principle concept of man’s determination of landscape by functions. Haggett’s “Locational Analysis in Human Geography” (1972) and his assumptions on conventional geography in “A Modern Synthesis” (1991) tries to put physical settings and anthropological behaviour together, but it is more systematically putting together the various disciplines of Geography.

The actual discussion on a critical cultural landscape is formulated by Jackson (1989) in his “Maps of Meaning”. In contrast to classical and conservative approaches, which see a physical setting as a context or a container for society, in this theory it is seen as a structure created by the society itself. This is because human ideas are expressed in behaviour which then creates cultural landscape. In return, these cultural landscapes reflect social relations and institutions, and they shape subsequent social relations. Here is the characteristic of this approach, i.e. in emphasising the so-called socio-spatial dialectical model. Social and cultural approaches on landscape are enlarged by Werlen’s (1993) theories on regionalisation of “ordinary culture” and his theories of action. He argues that the relation of culture and space in the contemporary conditions of life needs to be defined in a new way because today a variety of cultural worlds and lifestyles meet in small areas (Werlen and Wälty 1995). Werlen (1995) adds that social and cultural universes have no fixed spatial existence. Therefore action-centred categories and not only space-centred categories are needed for the geographical social and cultural research. In addition Crang (1998) gives an approach on locating culture, regional personalities, cultural areas and landscape as well as Peet (1998) adds his modern geographical thoughts and critics on the relations between society and the natural environment. Mitchell (2000) focuses more on the cultural aspects determining spaces and demonstrates an urgent need for a revised conception of culture in geography.

Based on this theoretical context the cultural landscape derives out of different layers of cultural impact over time on the region, until today on the acting people who use the natural resources for their needs. In this understanding, the traditions and rituals of the local communities decide on the use of the land and process the social and spatial change. To explain this changes it is necessary to interpret the landscape as shaped by the energies and practices of peoples to accord with their cultures over time. On the other hand, the landscape should be seen as a symbolic system. That is, how it is shaped according to the politics, the beliefs of the inhabitants and the meanings invested in the landscape. The extent of expressing cultural traditions in terms of value for the community life and the family status can be seen as an indicator of regional cultural obligations. Both interpretations are to be seen and explained in a historical perspective either in local beliefs, or migrants transported it to the region. In some villages traditions still have high importance for the people themselves, in other villages the phenomenon does not occur. Therefore the authors try to combine the classical approaches on cultural landscape with the modern ideas to reach a deeper interpretation of the research area.

3. Methodology

The regional historical and cultural overall analysis is based on the evaluation of contemporary and recent literature and statistics, historical plans and cartographic material in archives of Indonesia and the Netherlands. It focuses on historical background - development and structure of population and settlements. For example, the *memories van overgave*, reports prepared by the regional colonial officials, offer an abundance of data and information for the reconstruction of cultural landscape development in Central Sulawesi. However, they represent a one-dimensional view, namely that of the colonial ruling power. Moreover, these reports are very clearly structured. But the appearance of erased passages in the reports reflects the censorship that limits the use of the sources. Nevertheless, the *memories van overgave* are, besides published sources, the only pool of relatively micro-level data that delivers information about the impacts of Dutch colonial rule on population and settlement growth as well as on natural resource management. They have been analysed for the Dutch colonial administrative unit *onderafdeeling* Palu¹ under the special research approach of STORMA² sub-project A1.

The official overall statistics give an overview of the population development and the distribution pattern, but the results give poor information for the years before 1980 and are very poor on micro level. That is why selected micro studies are an integrated part of the regional overall analysis. Quantitative empirical data on demography have been taken from the statistical sampling frame of STORMA sub-project A4 in which 12 out of 115 villages of the research area were randomly selected and questioned in 326 households (Zeller et al

¹ Under Dutch colonial rule the Indonesian archipelago was divided into the following administrative units: *Gewesten* (e.g. Groote Oost), *Residencies* (e.g. Manado), *Afdeelingen* (e.g. Donggala), *Onderafdeelingen* (e.g. Palu) and *Landschappen* (e.g. Sigi-Biromaru).

² STORMA (Stability of Rainforest Margins in Indonesia) is a DFG-financed collaborative research programme of the Universities of Goettingen, Kassel (both Germany) and Palu (Central Sulawesi, Indonesia), and IPB Bogor (Indonesia). Since July 2000, researchers of these institutions study interdisciplinary the processes of stabilisation and destabilisation in the vicinity of Lore Lindu National Park, Central Sulawesi. Sub-project A1 examines these processes in terms of cultural geography.

2002). These data give a big amount of information, especially for the micro level, but they do not deeply explain processes, influences, and backgrounds of resource management over time. The standardised information of these sample studies for instance cannot compare local groups and migrant groups with respect to their cultural attitudes to land use systems and to potential conflicts. Therefore, the processes of tradition and cultural change in the framework of the above mentioned aspects are exemplified in detail for 4 villages located in the surrounding valleys of Lore Lindu National Park by in-depth qualitative research. Mainly semi-structured interviews were conducted in selected households, with formal and informal leaders of the villages and further key persons concerning the research questions. The synthesis of the regional analysis and the empirical case studies gives an overview of the development of the cultural landscape.

4. Regional Analysis

The research area is administratively divided into 5 sub districts (*Kecamatan*) and 117 villages (*Desa*): Kecamatan Kulawi, with the sample villages of Bolapapu, Lawe and Lempelero, Kecamatan Sigi-Biromaru, with the sample villages of Maranatha, Pandere and Sidondo II, Kecamatan Palolo, with the sample villages of Sintuwu, Berdikari, Kecamatan Lore Utara, with the sample villages of Watumaeta, Wuasa, Wanga and Rompo, and the Kecamatan Lore Selatan (see Maps 1 and 2).

Using village survey data the estimated total population in the 5 districts lies at 132 thousand for the year 2001. The population grew from 1970, ca. 62.000 inhabitants, 1980 ca. 83.000 inhabitants and 1996 ca. 120.000 inhabitants. Over the past two decades the population in this area grew by 60% or 2.4% annually. In this time span, the population size doubled in Palolo and almost tripled in Lore Utara. In those two districts population growth was already high in the 1980's and increased considerably during the 1990's. In Sigi-Biromaru a slowdown in population growth is observed. The population density is 18.7 people per km². The northern districts, Sigi-Biromaru and Palolo, are populated more densely: 86 and 43 people per km² respectively. In the other three districts population density is very low: around 10 people per km² (Faust et al).

There are different ethnic groups in the region, the main groups are Kulawi (32 %), Kaili (31 %), Lore (16 %), Bugis (10 %), Toraja (2%), Minahasa (2 %), Javanese (1%) and 6 % Other. Fig. 1 shows the regional differentiation for the sample villages.

On one hand it is visible that the different Kecamatan have different dominant ethnic groups, and on the other hand that there is a more heterogeneous composition in Palolo and Lore Utara than in Sigi-Biromaru and Kulawi. These population patterns have developed especially due to migration processes. During the past 20 years, in total 3.323 households migrated to this region from other provinces, 76% of them during the 1990's. Sixty-two percent of these households are migrants from other provinces in Sulawesi; 19 % are spontaneous migrants from other islands in Indonesia; and 18 % are transmigrantes from Java and Bali (see fig. 2). The districts Sigi-Biromaru and Lore Utara received each about 1,000 migrant households, from within Sulawesi as well as from other islands. Six hundred households were resettled in

Lore Utara as part of the national transmigration program. The districts Palolo and Kulawi received 807 respectively 450 migrant households, almost all of them from within Sulawesi. There was hardly any in-migration in Lore Selatan (Faust et al).

So, more than half of the population in the study area are migrants and except of Rompo, all sample villages on the so called "Napu site", in the east of the Lore Lindu National Park, are actually dominated by migrants (see fig. 3). On the other hand except Pandere, on the Sigi-Biromaru and Kulawi site, in the west of the park, all sample villages are dominated by local population. Three quarters of all migrants came to the study area since the 1970s. The road construction from Palu to Poso in the beginning of the 80s brought an increased influx to the region. In Watumaeta, Wanga and Wuasa more than 50 % of the migrants came within the last ten years. The main motives of immigration are the following: 30 % because of availability of land, 20 % marriage, 20 % job opportunities.

The phenomenon of out-migration has occurred very limited. And 90 % of the migrants who left their villages settled again inside Central Sulawesi, one third moved to Palu. So, they are all to be seen as local migrants. As motives for out-migration one third of the migrants stated "self-employment in agriculture" and one fourth "education". The core of the migrants (ca. 75%) originate from Central Sulawesi, only 18,1% are originated from South Sulawesi, dominated by the ethnic group of Bugis, who migrated primarily because of land scarcity in South Sulawesi and because of the cacao price boom 1995-97.

As explained in chapter two, conceptual framework, the differentiation of settlement and population structure is based on the development of the cultural landscape over time. To understand the actual spatial patterns of the region it is necessary to reflect the political and cultural background detailed on local level. This will be done exemplary on selected case studies in the following parts.

5. History

5.1 Pre-colonial period

Before the Dutch conquer, population density in the investigated area was very low. The people settled in kin group communities relatively isolated from each other, mainly in the surrounding mountains of the respective valleys. The kingdoms that ruled the kin groups represented more or less the territory of the districts that were established after independence. The main kingdoms were those of Sigi, Kulawi, Sedoa and Pekurehua (now Napu). Smaller kingdoms like the one of Pakuli, south of Palu, cannot be recognised anymore in the current administrative structure.

Only subsistence crops like cassava, corn and dry land rice were cultivated by doing shifting cultivation with rotation periods of up to 10 years. The kin groups moved their huts with their fields, so that no permanent settlements existed at that time. In the Palu and Kulawi valley wet rice cultivation was already known as well. So far, an explanation why sawah cultivation was not known in the neighbouring Poso region could not be found.

Economic exchange within and out of the respective kingdoms was low but it existed. Most intensive exchange relations existed between upland Kulawi and lowland Sigi. The pre-

colonial period can be regarded as quite stagnant in terms of migration. As the people of the different valleys lived relatively isolated, apart from marriage related migration of nobles within the research area, spatial mobility was negligibly.

5.2 Dutch rule

Dutch colonial power extensively influenced the traditional society in the study area like it did elsewhere during its expansion to the so-called Outer Islands, which commented by Doel (1994: 96) as follows:

„The expansion in Indonesian foreign trade was remarkable for both its strong momentum and its exceptional duration: about one-quarter of a century of uninterrupted expansion. It goes without saying that this expansion had a profound impact on economic structure in the regions immediately concerned, in particular among the Buitenbezittingen. Production became oriented towards foreign exports to an unprecedented degree and the Buitenbezittingen acquired their characteristic position as prime earners of foreign exchange in the Indonesian archipelago, a position which has since then grown permanently.“

The colonial conquest in Central Sulawesi took place at a time of change in colonial politics. By the turn of the 20th century, the so-called Ethical Policy influenced Dutch administration in the Malay archipelago. Its core element was a turn from a policy of total exploitation of the colony without any regard to the local population towards a “Volksverheffing”, which means that the local people should participate in the socio-economic status of a “developed” European country like the Netherlands.

Whilst the implementation of their Ethical Policy did not reach much more than conserving the old structure of power, the influences on land use and agricultural production and settlement patterns are perceptible. New transportation facilities were closely linked to economic needs, like roads to export crop cultivation areas. However, the need of sufficient subsistence production was recognised by the Dutch administrators, which indicates one of the effects of the Ethical Policy. Thus, the agrarian exploitation in this area was limited by moral concerns about the people’s nutrition.

Concerning migration, the Dutch started local and inter-island resettlements that were continued after Indonesia’s independence by the post-colonial governments. The driving forces during the colonial period were an easier governing and the exploitation of the people (local resettlements) or the improvement of land use (inter-island resettlements). While the local resettlements from the mountains to the valleys took place in large scale and led to a row of new permanent settlements, there was only one case of inter-island transmigration from Java to the research area (see Map 2).

The colonial rulers did not act as a stabilising force in the study area but confused the local population through a range of new influences. But as far as the sources reveal, there were no attempts of the colonialists to change the cultural landscape of the investigation area completely and without any respect towards the local population. There might be three reasons for this. First of all, one might assume that the impacts on the region would have been much worse, seen from the perspective of the local population, without this new colonial “ethical policy” of the Netherlands that accompanied the start of the 20th century. Secondly,

the colonial governments needed the benevolence of the local principals to rule this part of the colony as easy as possible. For a third reason, the mission, in this case, mainly the Salvation Army, which emphasised the necessity to respect the local population, played a major role by preparing the ground for the Dutch administration, and not at last for the facilitation of the resettlements from the hardly accessible mountainous areas.

Under the rule of the Dutch, people were forced to build permanent settlements with a compact village character. Concentrated in these new founded settlements, it was much easier to collect taxes or to recruit forced labour. With regard to agriculture, the Dutch re-vitalised old wet rice fields and expanded, especially in the Palu valley, the total area of wet rice production by building a huge irrigation system. The coffee plants were first distributed to the noble families. Later, also common people started to cultivate coffee. Besides, the introduction of coffee as a new (cash) crop, the introduction of money, the collection of taxes and the introduction of luxury goods like sugar by the missionaries installed a more and more capitalist economic system. In addition to the above-mentioned planned migration, people now also started to move spontaneously. However, it were usually Bugis, Chinese and Arab traders coming via Palu or Poso who used the new infrastructure of the Dutch to reach the more remote valleys like Kulawi or Napu.

5.3 Japanese rule

The Japanese colonial rule in Central Sulawesi has to be regarded under the circumstances of World War II. The conquest of the region should open new resources for the needs of war. The most important impacts of the three years lasting Japanese rule in the investigated region were the compulsory production of cotton and an enormous emphasis on discipline. Besides, the implementations done by the Dutch colonial government, like e.g. compulsory labour, were continued during the Japanese era. In contrast to the Dutch, the Japanese did not continue to establish new villages.

In regard of the short presence of this colonial power, the introduction of cotton and moreover the order that every household had to plant a special amount of this crop were considerable. A part of the people cultivated cotton trees on newly established fields, while others turned fields of subsistence crops into cotton fields. Even if in the first case the field size for subsistence production was not minimised, the compulsory cultivation of cotton led to a dangerous neglect of food crops. In this context, contemporary witnesses tell about serious shortage of food. Partly, only cassava and forest products served as nutriment. Besides a shortage of food, the people also faced a lack of supply with clothes. Trade to the hinterland was interrupted, so that after the introduction of fabric clothes by the Dutch the villagers were forced to revert to their traditional bark clothes, not only for ceremonial occasions but also for their daily life.

The second most important impact mentioned above, the new discipline introduced with a system of physical punishments that was not known to this extent during the Dutch rule. Not bowing in front of the Japanese commander's house, not cultivating cotton, not joining the marching exercises, not working long and hard enough and many other occasions were

regarded as sufficient enough to hit the people. Thus, an atmosphere of extreme fear affected daily life in the region.

It can be assumed that the local population does not regard the Japanese rule as more suffering than the Dutch one because it was later in time and can be reminded better. Rather, the Japanese just acted more brutal as the Dutch what may be ascribed to the influence of the Ethical Policy of the Dutch.

5.4 Independence

During the first decades of independence the population growth in Central Sulawesi and in the research region was relatively low, but rose immensely starting from the 1970s. Inter-island resettlements and, in a much larger scale, spontaneous migration during the 1990s are the major cause of this demographic change as today more than half of the population in the study area are migrants. Main push factors for spontaneous migration are land scarcity and lack of job opportunities at the place of origin, whilst land availability and patron-client or family relations are the most important pull factors. In contrary to local migration, spontaneous migration from outside of our research area is a phenomenon that took place to its largest extent during the youngest history of the last twenty years.

So, we can identify for this type of spatial mobility a phase of low (colonial era), a phase of moderate (ca. 1950s till 1970s), and a phase of high influx (1980s until today). The last phase is mainly dominated by immigrants from South Sulawesi who search for free land, which can be cultivated with cacao, a crop that was cultivated in South Sulawesi much earlier than in Central Sulawesi. The second phase also includes migration of refugees from the rebellion of Kahar Muzakar in South Sulawesi and the Permesta rebellion in North Sulawesi. Currently, land scarcity also becomes increasingly a problem in the study area, which leads to an expansion of agricultural land use into protected forest areas of Lore Lindu National Park.

Adaptation from migrant groups takes mainly place in the case of newcomers from South Sulawesi in terms of agriculture. In general, this adjustment happens for the introduction of new crops, e.g. cacao, and cultivation methods (e.g. use of fertilizer, planting in a row). Besides this, there are also many cases where the autochthonous know about differences of land use compared to allochthonous but do not adapt these innovations. Concerning local resettlements and (semi-)spontaneous local migration, a dynamic phase from the 1960s until the 1980s can be extracted from the study. The resettlements led to foundations of new villages as well as increase of the population of already existing villages, which produced a growth of cultivated land by approaching the limits of arable land.

The historical overview displayed above shows that there are numerous impacts on land use, settlement and population structure that changed the cultural landscape of an area bordering the rainforest in Central Sulawesi. These results already content a wide range of important information that are necessary to understand the current status quo of use and management of natural resources in the study area. Going a step further, it also allows then trying a projection of how this region could develop in the future.

However, the influences and changes differ from sub-district to sub-district and even from village to village, which shows the complexity of the regional analysis of this region. Thus, if we want to get a more realistic picture of the development, the current status quo and thus a more precise base for projections in the investigated area, it does not suffice to regard the region around Lore Lindu National Park as a whole, as a homogenous unit. As it will be shown below, smaller units of different development of cultural landscape down to village level can be defined.

6. The Integrated Empirical Case Studies

6.1 Sigi-Biromaru

The sub-district Sigi-Biromaru, located south of Palu, is the most densely populated area with the best infrastructure in the entire Lore Lindu region. The local population belongs to the big Kaili language group that settles Palu and Palolo valley as well as the coastal areas along Palu bay. Most of the villages are located along the asphalt road from Palu to Kulawi/Palolo. After the subjection of the different smaller and bigger kingdoms by the Dutch in 1904, the people of the Palu valley, who populated the surrounding mountains, were resettled to the plain in order to re-process old and open new wet rice fields. It is assumed that malaria diseases reduced the amount of cultivated wet rice fields during the 19th century. A big irrigation project that was established by use of compulsory labour in 1931 led to an immense expansion of wet rice cultivation. Besides, the Dutch promoted the cultivation of coconut trees to obtain the export product copra.

To handle the problem of deforestation by slash-and-burn shifting cultivation, the Dutch established forest reservations and forbid the people to cultivate these areas. Maybe due to the Ethical Policy, which influenced the colonial activities at the beginning 20th century, the Dutch reduced the size of the reservations and, in addition, allowed some of the people to move back to their areas of origin in the mountains. However, these people had to give up their nomadic lifestyle and settle down in villages.

The majority of the people is Muslim because Christian missionaries concentrated their efforts on more remote upland areas like Kulawi. Christians are mainly found where the Salvation Army was included in the implementation of local resettlements from the mountains after independence or where a community of migrants from Christian regions in North or South Sulawesi (Tanah Toraja) exists. Post-colonial local resettlements started by the end of the 1960s and resulted in case of Maranatha in a totally new established village at a place that was covered by primary forest before. In Sigi-Biromaru, no extraordinary phases of immigration can be distinguished because the early improvement of infrastructure made the Palu valley an open access area since the Dutch rule. Most immigrants originate from Muslim South Sulawesi, as the coastal area of Palu bay was a centre of Islam since the 18th century.

Growing population density, land scarcity and the boom of cacao price in the 1990s made many people acquire land in less populated regions like Palolo. Some of them just cultivate land there, others moved permanently to the new location. This happened mainly spontaneously but some of the migrants also joined local resettlement programs e.g. to

Kamarora. Today, the main crops in Sigi-Biromaru are still wet rice and copra but cacao becomes more and more important although the hot climate is not best suitable for this crop. Despite the fact that most of the people were resettled to the plain, still a big number of dry land fields cover the slopes of the mountain ranges. Mainly vegetables, coffee or cacao are cultivated there. The Dutch partly improved the transport infrastructure up the mountains where they promoted the plantation of coffee and vegetables but the condition of those villages is still quite poor. The majority of the villages does not border the Lore Lindu National Park and thus this protected forest area is relatively unimportant there.

Case study – village Pandere

Pandere was founded in 1925 after the Dutch started in 1916 to force the people of small villages in the mountains to move down to the plain of the Palu valley. The village belonged to the territory of the king of Pakuli, a descendent of the same parents as of the king of Sigi-Bora. The Dutch offered to build an irrigation system and promoted the cultivation of wet rice. All these former settlements are now deserted except of one that is included in one of the three dusun (hamlets) of Pandere. The name of Pandere derives from the word “pandai”, which means clever.

In 2001, Pandere counted 529 families. Two thirds of the population lives in the centre of the village (hamlet 1), while the other third lives along the main road (hamlet 2) and up the hill (hamlet 3) to the North of the village centre. This third hamlet consists of three settlements divided by forest and coconut or cacao fields. Since 1968 the village has an asphalt road connection to Palu. First houses were powered by electricity in 1992. Today, except one settlement of the more remote hamlet 3, 90% of the houses are supplied with electricity.

Hamlet 1 is mainly populated by locals, while most of the inhabitants of hamlet 2 are migrants from North Sulawesi, South Sulawesi and China. Hamlet 3 is the location of locally resettled people and of locals who moved back to their settlement where their families lived before the arrival of the Dutch. Depending on the chronology of immigration the settlement of Pandere developed itself from South first to the North along the main road Palu-Kulawi and later on from there to the east up the hills.

Immigration to Pandere started already during the Dutch colonial period, when traders from China and priests from North Sulawesi settled down in today's hamlet 2. As the neighbouring Kalawara was founded after an inter-island resettlement of Christian Javanese by the Dutch and after became a centre of missionary activities, it is not very surprising that the Christian migrants from North Sulawesi settled down in this village's neighbourhood. Local resettlements in the 1960s/70s led to the establishment of hamlet 3. First Bugis families moved to hamlet 1 in the beginning 1960s. They got land at the swampy area of Pandere and stayed there for around ten years. As result of a decision of the village government, after 6 harvests they had to give a part of their wet rice harvest to the local owners of the land. In 1971, the Bugis bought land at the main road or further away and moved to there. Today, the swampy area is unpopulated. However, like in other villages of the study area, most of the migrants from South Sulawesi arrived during the 1980s and 1990s. The influx of migrants from North Sulawesi stopped during the 1970s. Besides, also migrants from Kulawi, Bali etc. moved to Pandere but their number and/or influence on the village is quite small. Out-

migration takes mainly place for duty reasons (civil servants) to Palu, North or South Sulawesi, Java and Napu. These migrants stayed usually in hamlet 2 where the level of education is much higher than among the locals.

Before 1965, the sub-district chief gave an order that migrants have to get land for free. After that, migrants had to buy land from the locals. Land sales are more common in hamlet 1 than in hamlet 2 where the agricultural productivity is more improved, education is higher and thus the consciousness of the danger of blindfolded land sales is higher as well.

The four Chinese families are mainly engaged in trade. One of them built a rice-processing factory in 1968 and was the first owner of a car (truck) in Pandere in 1967. Both, Bugis and Manado people (North Sulawesi) introduced a new working spirit and changed the wet rice production from one to two harvests. Especially Manado families put much effort into the education of their children, while the locals conserve the believe that the basic knowledge learned at primary school is enough and the help of the children on the parents' fields is more important. Manado people introduced *mapalus*, a system of organised labour teams. They also introduced the sickle for cutting the rice sheaves. But the local lembaga adat forbade its community to use this tool as it could harm the harvest and thus blocked an innovation in agricultural production. The migrants from North Sulawesi also gave the suggestion to the locals to expand their field size that was only about ten times ten meters and cultivated only for the family's own consumption. Bugis migrants introduced methods of cacao cultivation like a larger distance between the trees or the frequent cutting of leafs. Besides land cultivation, the Bugis engaged in trade.

Wet rice production is, besides the cultivation of coconut trees, the most important source of income in hamlet 1 and 2. A semi-technical irrigation was built in 1931 (Gumbasa irrigation) and became a technical one in 1976. However, the people complain that the former irrigation system worked better because the Dutch had employed an officer who checked the system every day. The forest of hamlet 3 was turned into fields with the arrival of locally resettled migrants in the 1970s. Dry land rice, cacao and coconut are the main crops there, while coffee becomes more and more unimportant. Some of the Bugis families cultivate wet rice and coconut trees in Pandere while they plant cacao in Napu.

6.2 Kulawi

Sub-district Kulawi can be divided into three regions: the northern Kulawi (usually called Kulawi) with an enclave around Lake Lindu inside the national park, the southern Kulawi (Gimpu valley) and the remote Pipikoro area in the Southwest. Since 2002, Pipikoro forms an own sub-district. Three main languages, Moma (northern Kulawi, except Lindu area), Uma (Gimpu and Pipikoro area) and Tado (Lindu area) are spoken. Most of the villages (except Lindu and Pipikoro area) are located along the main road from Palu.

Before the Dutch entered Kulawi in 1906, the people of Kulawi stood under the control of the king (*raja*) of Sigi who was, at that time, the most powerful principal in whole Central Sulawesi. After the Dutch defeated the Kulawi soldiers in the war at Mount Momi, the *raja* of Kulawi surrendered and asked his people to follow the orders of the Dutch. Those first settlers

stayed in Namo, north of the capital village Bolapapu. Later, they established Bolapapu as the centre of the northern part of Kulawi and Gimpu as centre of the southern part. Like in other regions of the research area, pre-colonial settlements were not yet permanent. The people lived in kinship communities and planted dry land rice, corn, cassava and sago in slash-and-burn shifting cultivation. However, sawah was already cultivated as well.

The Dutch resettled the people from the mountains to the valley and introduced coffee trees, at first only to the royal families, later on to the common people. While wet rice cultivation is seldom in villages of the Pipikoro area due to the morphological conditions, this crop mainly covers the plains in the North and South of Kulawi. In villages whose borders reach from the western until the eastern mountain range, where the national park starts, the people used to cultivate two fields, one on each side of the valley. However, after the establishment of Lore Lindu National Park people chose different solutions to keep their economic status ranging from gathering rattan to opening of more distant fields in the west or to following the government's local resettlement program to the enclave of Lake Lindu. Besides cacao, coffee is an important crop in whole Kulawi up until today.

Before the Dutch arrival, trade exchange systems to Palu valley existed already in a small extent. Usually buffalos or gold were exchanged with salt and other goods. Information diverges whether money was already known before the arrival of the Dutch. It may be possible that only in the northern part of Kulawi money was already known before the Dutch because it is located closer to the Palu valley. By the start of World War II in Southeast Asia it became difficult to get fabric clothes because the trade with Kulawi was interrupted. People started to wear bark clothes as they did before the arrival of the Dutch.

The road that the Dutch built in the 1920s connected the Northern part of Kulawi with Palu. Today, most of the villages of the two plains, Kulawi and Gimpu, can be reached on asphalt roads. Only Pipikoro area is still lacking sufficient transport facilities. This slows down the economic development of this part of Kulawi by rising transport costs, and leads to out-migration since decades. During the 1980s and 1990s, most of these migrants searched a new living in less populated areas like Palolo or Napu valley.

With the arrival of the Dutch, first Arab and Chinese traders settled down in Bolapapu, the capital of the sub-district. After independence a main phase of immigration of Bugis started with the DI/TII rebellion in South Sulawesi. However, their places of destination are located in the southern part of Kulawi as the refugees entered the sub-district straight from South via the mountains and not via Palu. Besides this phase and the general influx of migrants from South Sulawesi in the 1990s caused by the improvement of the former gravel main road into an asphalt road, immigration to Kulawi was constantly moderate over time. This constant migration led to an earlier start of land scarcity than in other regions of the Lore Lindu area, and thus only a few of the Bugis who moved to the research area during the 1990s selected Kulawi as their destination. This fact explains among others why in Kulawi the percentage of locals is still quite high.

The Salvation Army opened its first school for common people in Kulawi in 1916 and started to introduce Christian religion but it lasted until the late 1950s that all people converted to

Christianity. While the adat law as a whole was untouched by the Dutch, adat rituals/ceremonies that interfered with the beliefs of Christian religion, like praying to stones and trees, slicing of prisoners or slaves, or the initiation rites of hitting off the front teeth of girls, was abolished. Today, Christians build the majority in most of the villages in Kulawi, except a Muslim centre of Bugis people in Gimpu valley.

The implementation of the border of Lore Lindu National Park caused uncertainty among the people like in other parts of the investigated area. However, the protected forest is less affected with clear cutting than in other sub-districts.

Case study – village Bolapapu

The name Bolapapu is used since 1905, but people settled in this area already before, not down in the valley but up the surrounding hills. The former name of the settlement is Bola, which means “houses”. A folk tale says that people from Lake Lindu burned down (*papu*) the huts of Bola and as a result the inhabitants created the today’s village name. When the Dutch came in 1906, they started to establish Bolapapu at its present location. Until today, Bolapapu is the local centre of northern Kulawi.

The village consists of five hamlets, which are spread over more than eight kilometres along the main road, from the centre of Bolapapu (hamlet 1) to the North. Besides hamlet 1 and 2, which grew together and now build one compact village complex, the housing area of one hamlet is clearly divided from the one of the next hamlet by fields and forest. While the plain area is relatively large in the first two hamlets, the valley gets smaller on its way to the North. Until 1985, Salua was hamlet 6 of Bolapapu. It became an own village due to population growth and the far distance to the centre of Bolapapu. The majority of the people in hamlet 1 until 3 are Christian, while hamlet 4 and 5 are dominated by Muslims. An Arab trader introduced Islam but most of the today’s Muslims are Kulawi people.

Terracing of wet rice fields in hamlet 1 started after population growth and expansion of the area of governmental buildings led to a conversion of rice fields on the plain land. Hamlet 1, and more and more hamlet 2 as well, is the obvious centre of the village and thus developed totally different than especially the more distant hamlets 3 to 5. Most of the village’s trade infrastructure is concentrated here and dominated by Bugis and Chinese people. Kulawi people, in contrast, dominate the governmental institutions or are farmers.

Hamlet 3 consists of three settlements, called Boma, Boya 1, and Boya 2. All three locations exist since the same time. Before the Dutch came, the people lived in the valley and cultivated sawah. The Dutch forced all of them to move up to the road. While coffee – besides wet rice – was a main crop after the Dutch had introduced it to the people, cacao started to become important in 1982. An officer from the Agriculture Dept. promoted this crop, and as the people were promised that cacao will have a good future, they changed corn-cassava-vegetable fields into cacao fields although the price for coffee was still higher than the price for cacao at that time. Today, cacao and coffee are the main crops, followed by wet rice.

Before the people of hamlet 4, called Laone, moved along the main road (after the colonial period), the Dutch resettled them from Namo, their place of origin, to Tolumanu, about 1 km

away from the main road. The Dutch built a horse track to Lindu and gave coffee and cacao seeds to the royal family. The common people cultivated wet rice or dry land rice fields and lived there for about 20 years. In the 1950s, they moved closer to the main road. Today, no one lives in Tolumanu anymore. Cacao and coffee fields now cover the area. The deserted place is called Kintahai (old settlement) since the people moved to Laone. There are still visible remains of the former houses and of the track to Lindu. Behind Kintahai to the East, wet rice fields that are cultivated by the villagers of Laone cover a valley that has no road access. When the people moved from Kintahai to Laone, they first settled around the school that was built in 1958. Later, the hamlet developed from the school up towards the main road. During the Dutch period, Arab Muslims moved to the village to teach Islam. Today, Laone is the settlement with the highest Muslim density in whole Kulawi (95 percent). Most of the population of hamlet 3 and 4 was born there (or in the area around) or moved from hamlet 1 or 2 to there.

Two settlements form hamlet 5 that is situated along the main road, Salua and Sadaunta. About seven years ago, Sapoo was hamlet 6 while Tangkulowi, situated in the Western mountains, was called hamlet 5. In order to decrease population density and to stop shifting cultivation in the area, the people of Tangkulowi were resettled to Palolo valley and to Luro, a location near hamlet 1 of Bolapapu. The inhabitants of Sadaunta, from where a horse track leads to Lake Lindu, engage mainly in dry land cultivation. A mix of rice, corn, cassava and vegetables was planted in former times, coffee became more and more important and is still the main crop of the hamlet. When the government forbid planting new coffee trees inside national park and only allowed to collect the harvest of their already existing fields, the people gave up most of those fields because the harvest they could obtain was very small. Instead of this, they opened new fields at the Western mountains although the distance to the fields there is about four times bigger. Sapoo and Sadaunta have a village structure since 1970. Before houses existed in this area, big parts of the land were already planted with coffee. Only one or two years later, the first Bugis moved to the area and started logging and worked as carpenters. In order to prevent young people to enter the protected forest, the villagers started a program to re-process former fields.

Major out-migration from Bolapapu took place to Lake Lindu (local resettlement program) in the 1980s when arable land became scarce because of the implementation of the border of the later Lore Lindu National Park. Most of the people who left Bolapapu spontaneously moved because of marriage or because they got a government job in Palu.

6.3 Palolo

Like in other parts of the study area, the pre-colonial population of Palolo did not live in the valley but in the surrounding mountains. Slash-and-burn shifting cultivations of rice, cassava, maize and vegetables as well as the use of forest products by hunting and gathering formed the subsistence economy. The people lived in small kinship communities spread over the forest area that was territory of the kingdom of Sigi. Between Palolo and Napu valley were almost no relations at that time due to the physical barrier and the rumours about the violent To Pekurehua (today known as To Napu, people of Napu) – although Napu valley was actually subordinated to the raja of Sigi.

Trade exchanges took place between the inhabitants of the upland with their lowland neighbours in the Palu valley. Before first traders (mostly Chinese, Arab or Bugis) came to Palolo, the upland people went to Palu valley to trade their buffalos etc. in order to get salt or fish etc. in exchange.

Roughly, three phases of village foundations form the recent landscape of settlements in sub-district Palolo. First permanent settlements were founded after the Dutch gave an order to the people to move down from the mountains. The first settlements like Kapiroe, Bunga or Menusi are all located close to the Palu valley at the Western end of Palolo valley. The rest of the valley until the physical border to Napu valley in the East was still covered by forest and grassland and partly served as hunting area. During the Dutch period, the inhabitants of these new settlements were forced to start cultivating wet rice fields and to give up their dry land rice fields.

A second phase of village foundations started at the end of the 1950s when parts of some of the former villages became the status of an independent village, e.g. Berdikari that belonged to the territory of Menusi before, as well as Makmur (capital of sub-district Palolo) or Ampera. At the end of the 1960s and during the 1970s, a third phase can be extracted. Some of these new villages are again the result of separations from villages of the second phase (e.g. Bahagia a transmigration settlement that belonged to the territory of Berdikari before) or they are founded on land that was still not yet territory of one of the already existing villages (e.g. Sintuwu).

Besides spontaneous immigration, the short period of the second and third phase is based on out-migration of the densely populated oldest villages of the sub-district and resettlements from other regions. Thus, in Palolo valley, in different villages, different ethnic groups built the first village communities, ranging from local Kaili-Ija people to Kulawi or Javanese people. A very important factor concerning the development of settlements in Palolo was the Indonesian government of the New Order era that gave an order to turn the whole valley into cultivated land. However, especially the Kulawi people in Berdikari are proud of the name of their village, which means “Berdiri di atas kaki sendiri” (“to stand on one’s own feet”).³ This name says that the migrants from Kulawi got no material support from the government unlike usual local transmigration projects (e.g. the village Kamarora).

During the 1960s and 1970s, the government pushed wet rice production but until today the productivity is slowed down because of insufficient irrigation. Were broad parts of the mountains covered by clove trees during the 1980s, a decrease of the prize for clove led to conversion of this plant into cacao trees starting in the 1990s. Today, cacao is *the* cash crop of the sub-district.

Case study – village Berdikari

³ The first name of the territory was Karawa Maluo (wide grass land). It was changed by the district government (Kecamatan) into Berdikari after the village got its official administrative status.

In 1954, the founders of Berdikari, seven Kulawi families from the remote Pipikoro region, who stayed in Menusi before, opened forest in today's hamlet 1 and turned it into dry land rice fields. The grassland was turned into wet rice fields. However, at that time they spent most time on exploiting rattan that was sold to Palu.

In 1964, they started to build a village road and to clear land for a school and football field. In 1968, the population of Karawa Maluo (later: Berdikari) had mounted to 40 families. On the wish of the inhabitants Karawa Maluo became an own village in the same year and from then on was called Berdikari. During the 1960s, people from South Sulawesi (Bugis, Toraja) had already moved to the area but they left again because of problems with the Kulawi adat (Toraja) or because a padi mill that the Bugis wanted to build existed already. These migrants did not stay at the centre of the village but in today's hamlet 2.

Until 1969, the people still lived in little huts on their fields. That this area developed quite fast was due to the first village chief who got the nickname *tangan besi* (iron hand). Described as quite cruel, he did not hesitate to hit people who did not hurry up opening sawah fields and who did not attend *kerja bakti* (joint work for village issues without payment). Some people even left the village again and moved somewhere else because of this village chief. He also gave an order to settle permanently along the new built road. He promoted coffee and sawah as the villagers' future. Around 1990, the cultivation of dry land rice stopped because the people changed their crops more and more to clove, coffee and cacao. Clove was introduced and promoted by the Dept. of Agriculture. First cacao trees were planted about 15 years ago by Bugis migrants. After clove lost its price, the people cut the trees and replaced them with cacao trees. Since 1995, the inhabitants of Berdikari are prospering from their cacao harvest. The monetary crisis in Southeast Asia in 1998 let the price for cacao increase to 20.000 Rupiah per kilogram and thus more and more people were able to invest in status symbols like motorcycles.

With the increase of population growth (mostly due to immigration), a second leader organized the life of the community in Air panas in 1978. One year later, Air panas became hamlet 2 of Berdikari. The vast majority of the inhabitants of that hamlet originates from Kulawi. They had already fields in Air panas but still stayed in hamlet 1. Later, they moved to hamlet 2 to reduce the distance to their fields. Before a big flood in 1986, perennial crops were only planted around the houses. After the flood destroyed a big part of the wet rice fields, the inhabitants of hamlet 2 started to engage in planting esp. cacao trees on different fields.

At that time, today's hamlet 3 was included in hamlet 2. It became an own hamlet in 1992 because of the ongoing population growth and the big distance to Air panas. Today, hamlet 3 is mostly populated by people from South Sulawesi (Toraja, Palopo, Bugis). The area of hamlet 3 was first used as hunting area for Kulawi people in the 1970s. In the same decade, first Bugis stayed here and gathered rattan in the forest. The migrants could ask the village head of Berdikari to settle down and open land. He decided on the location. At the moment, there is a government program running to move all houses along the main road and to build side roads if there is need. Around sixty families still do not live along the road but on their fields, up to 7 km away from the road.

Since 1965, hamlet 2 and 3 were divided by a new settlement of transmigrants from East Java. Actually, they should be resettled to Rachmat (near Sintuwu), but as this land was very swampy and infrastructure was poor, they moved to Berdikari and formed Berdikari 2. In 1977, the transmigrants still attended the village elections of Berdikari. One year later, the name Berdikari 2 changed into Bahagia and it became an own village.

There are almost no reports about problems between the different groups of migrants. However, Berdikari is also mostly divided along ethnic lines. While Kulawi people form the vast majority of hamlet 1 and 2, people from South Sulawesi can almost only be found in hamlet 3. The Javanese people are also assembled only in Bahagia that is an own village anyway. Despite of that, a good administrative relation can be detected between the hamlets, which might be due to the engagement of the present village chief who takes his job seriously.

6.4 Lore Utara (Napu)

Lore Utara consists of a big flat valley at an elevation level of around 1000 m above sea level. The northern third of the valley is still partly covered by forest, while the South was mainly grassland at the beginning of the 20th century. The plain served as a big grazing area for buffalos and horses. Before the colonial conquest, the people of this area, called Pekurehua, often attacked the people of the nearby Poso plain. According to folk tales, the Poso people applied the name Napu, meaning “those who kill people”, to their aggressive upland neighbours. Until the end of the Dutch period, the people were ruled by the king of Lore whose centre was first Watutau and since 1923 Wanga.

In 1907, with the victory of the Dutch in Peore war the people of Napu were subjected under the rule of the Dutch colonial government. Almost totally isolated before, with the Dutch, first Chinese and Arab traders came from Poso to this upland valley for trade. Some of them even settled down but left again a couple of years later in order to look of other areas for their trade. During the Dutch rule, the people started more and more to cultivate wet rice because the Dutch forced them to leave their semi-permanent settlements in mountains and to build permanent settlements in the valley. The thesis that, unlike the neighbouring Poso plain, wet rice was already cultivated in pre-colonial times is supported by stories of local informants. The impacts of the Dutch were the same as in other regions of the study area. The production of wet rice was promoted, roads were built by compulsory labour, taxes were collected, the Christian religion introduced, and traditional adat rules were brought in line with the new believe. However, until now, the irrigation systems in Napu never reached the same technical standard like in the Palu valley. Thus, the productivity of wet rice cultivation in Napu is still far below its possible maximum.

During the first decades after independence, immigration increased the number of inhabitants slightly. In addition, governmental programs did not pass the area. Thus, traditional land use was still conserved over many decades. Until 1982, when the valley was connected to Palu by road, immigration to Napu was very low. This changed afterwards rapidly. Especially migrants from densely populated South Sulawesi moved to the sub-district and introduced cacao and its cultivation methods. At the beginning of the 1990s, three inter-island

transmigration programs led to new settlement foundations that were more or less closely linked to already existing villages. At the same time the number of spontaneous Bugis migrants as well as migrants from other areas of the Lore Lindu region settled down. Besides cacao, a variety of vegetables was now largely produced. With the move of the administrative capital from the South to the North of the valley and with the new road connection to Palu, the northern part of Napu developed faster and became more populated than the South. Another reason for this change are natural conditions as *alang-alang* grass is a bigger problem for land use in the Southern part.

Besides Palolo, Lore Utara is a sub-district where the margins of Lore Lindu National Park are endangered more severe than at the Western border of the national park. A big demand of land induced by financially better-off migrants from South Sulawesi led to land sales of huge dimension. Locals who did not encounter the problem of land scarcity in the future sold land. Unclear information by officers of the Department of Forestry about the permanent status of forest protection kept the locals' believe alive that their ancestors' land inside the National Park can still be used if further land is needed e.g. for heritage purpose. During the last years, an enormous conversion of protected forest into arable land can be observed. In no other sub-district people act that obvious, and often they do not even try to hide their activities, recently assured by the case of a large-scale illegal conversion of forest inside the nation park along the road coming from Palu and intersecting this park.

Case study – village Wanga

Located at the Western part of Lore Utara, Wanga was founded in 1923, when, after a conflict among members of the noble family, the king and his kin group moved from Watutatu to Wanga. The place was chosen as it offered good grazing areas for buffalos and was regarded suitable for wet rice cultivation. During the first years starting from 1923, the group leader decided on the land that each family got. The royal descendent kept the main part of the land. Many people worked there for free to show their love to the king. In 1925, the Dutch gave Wanga the village status. First wet rice was planted during the 1930s. With the move of the king from Watutau to the Wanga, this village became the new centre of the kingdom of Lore. Like in other villages, until the 1980s most of the people lived in small huts at their fields and only came down to their houses along the road on weekends for school and church service.

Wanga's two hamlets were established at the same time, but in the beginning, the hamlets were located along the main road. After the North-South distance of the hamlets got too far for communication, the border was set across the main road. Today, hamlet 2 is the centre of the village and home of almost all local families, while hamlet 1 is almost exclusively populated by migrants from Kulawi, Flores and South Sulawesi. Since 1999 refugees from the Poso conflict live there as well.

The starting point of the establishment of a housing area in hamlet 1 was just about ten years ago. Before people settled down in today's hamlet 1, that whole area was grassland with several trees on it. In 1990/91 around 15 families from the remote Pipikoro area in Kulawi moved from Kamarora to hamlet 1 of Wanga, where at that time only a few people settled. The Kulawi people had followed a local resettlement program to Kamarora before. As they

were not confident with their situation in Kamarora, they followed their group leader to Wanga. The land that the Kulawi people got from the government for wet rice cultivation (1 ha per family), was not cultivated any more after a bird problem got too severe in 2000. Today, most of the Kulawi people plant corn, pumpkin and green beans. Only a few of them cultivate a cacao-corn mix additionally. Twelve families moved back to Kamarora 1-2 years after they came to Wanga. They were not able to handle the difficult life here. The village government wanted them to plant sawah and thus did not give them land on the hillside. These 12 families were replaced by families from Winatu (Pipikoro) that came spontaneously. Years later, when the village leaders recognized that the Kulawi people could not handle the bird problem, the village government borrowed them land for corn cultivation.

In 1999, Flores people followed a Chinese man to Wanga who rented 5 ha of land, two ha of which were then cultivated by these Flores people. Those five hectares were part of 30 ha of land that were cultivated with coffee on a suggestion of the sub-district that gave the seeds. A big fire after a drought period destroyed all coffee trees. Today, about 20 ha of that area are cornfields. The Flores migrants were resettled to Poso after a heavy earthquake at their place of origin in 1991/92. Actually nobody of them wanted to stay permanently in Wanga but when the Chinese man gave up his land in Wanga and the Poso conflict got more severe, they saw no chance to go back to Poso. The village government plan to give land to Flores people for free but there is no more free land available. However, big parts of the arable land in Wanga are not cultivated at the moment because the people do not have the energy to cultivate all. Thus, Flores people borrow land from them and cultivate corn.

In addition to Kulawi people, starting in 1996 a small number of families from South Sulawesi, Java and Palolo moved to Wanga and settled down in hamlet 1. The village head decided their place. They are wet rice farmers on land that they got from the village government. The first Bugis man however moved to Wanga already in 1964 after he left South Sulawesi in 1958 to flee from the DI/TII rebellion. Married with a local woman, he lives in hamlet 2. Apart from this man, only two more families from South Sulawesi live in hamlet 2 today and represent the wealthier part of Wanga's population.

Wanga is the only village in Lore Utara that has a lake for fishing. As many of the villagers chose that source of income more than caring about their fields, the village leader tried to force the people to put more effort on cultivation of wet rice. Nevertheless, the insufficient irrigation let many villagers keep on spending most of their time on fishing. During the 1950s, the areas of dry land rice and wet rice had nearly the same size, and the people harvested once per year. When the irrigation broke in the 1960s, all people turned again to dry land cultivation. However, starting in 1972, the people changed land use from dry land rice cultivation to wet rice. Wet rice cultivation did not need the big work effort of cutting trees and thus was easier to process. In 1981, on a suggestion of the sub-district, dry land rice was not cultivated any more at all. Only since the 1990s, the people of Wanga sell their corn harvest, as the prize was too low before. Today, the main crops cultivated in Wanga are rice and corn. Bugis migrants and traders introduced cacao. The amount of cacao fields is much smaller than in other villages, which may be due to the small amount of migrants from South Sulawesi. A village agreement makes it here more difficult to obtain land than in other villages of Lore Utara. Hamlet 1 could be cultivated more intensively than it is done today.

But the insufficient infrastructure (mainly irrigation) stays a problem. In 1995, the village head forbid fishing in the lake of Wanga for one month during harvest time of sawah in order to raise the productivity of wet rice cultivation. Fearing that people of other villages could use the lake as source of income, he did not repeat this interdiction again.

After the sub-district office moved from Wanga to Wuasa in the 1960s, many people, mainly civil servants, moved to Wuasa, Palu and Poso. The effect of this exodus was a change of the status of education in Wanga that decreased significantly. It can be assumed that because of this development a different village policy concerning land sales to migrants could have already caused a same high degree of land sales with similar results in regard to conversion of protected forest as in other villages of Lore Utara.

7. Discussion and Conclusion

The evidence of the empirical studies presented above emphasises the theoretical approach of this paper. Both, local settings and external impacts form the current cultural landscape of the investigated area. In addition, both have to be regarded in historical dimension by a distinction of different layers of space and time. The description of landscape development in the research area as a whole, in the different sub-districts as well as in the selected villages also proof the assumption that the Lore Lindu region does not represent a homogenous unit. Each sub-region (Sigi-Biromaru, Kulawi etc.) consists of elements of common changes of cultural landscape. But – and this was the major aim of the paper – the today's status quo of the entire research area is based on processes of permanence and change, stability and destabilisation in the different parts of the whole region. Natural and cultural settings change between sub-districts, and within each sub-district they also change between sub-area (like e.g. Kulawi valley, Gimpu valley and Pipikoro in sub-district Kulawi). Furthermore, even different villages, although situated close to each other, develop their own specific cultural landscape.

Starting with the example of the development of village foundations (see Map 2), a spatially very different process can be recognised over time. Most pre-colonial settlements existed in Kulawi and Lore Selatan whilst in Palolo valley no settlements existed at all. In contrast, a short but intensive phase of village foundation happened in Palolo during the 1960s to 1980s, an exceptional process that cannot be observed in any of the other sub-districts. Such a facet of cultural landscape is closely linked to a diversity of migration from, to, and within the region. In general, the investigated area can be roughly divided in a region of quite low immigration over time and since independence out-migration mainly to Palolo (Kulawi), a region in transition, where currently immigration decreases from its high level and out-migration to the Eastern part of the research area gets higher (Sigi-Biromaru), a region of high immigration rate since the 1960s and low out-migration (Palolo), and a region of low immigration over time rising exponentially during the 1990s and low out-migration (Lore Utara).

Although the Lore Lindu region, compared with other parts of Sulawesi, represents an immigration area, migrant influxes and out-fluxes diverge among its different sub-regions as well as between the villages. If we take the example of sub-district Lore Utara, differences of

the general development in terms of immigration of people from South Sulawesi on the one hand and the case of the village Wanga on the other hand illuminate the above mentioned pattern of Lore Lindu as a heterogeneous region. Lore Utara as a whole is determined by a high rate of immigration from South Sulawesi during the 1990s, but this view changes if we regard the Northern and the Southern part of the sub-district separately. The centre of Bugis migration are villages of the Northern part due to the reasons mentioned above. Wanga however, counts a relatively high number of migrants (see Fig. 2), but these newcomers consist mainly of people from the research area, although the village also belongs to this spatial centre of Bugis migration. The special settling politics of the village government held the number of these migrants low although land is still available.

In terms of land use, different parts of the research area can be extracted as well. Due to the foundations of irrigation for wet rice cultivation established by the Dutch, Sigi-Biromaru represents the granary of Lore Lindu region. In contrast to other sub-districts, Coffee is still a very important cash crop and became a part of the sub-districts cultural identity. Cacao is *the* dominant crop in sub-district Palolo because of the big amount of migrants from South Sulawesi who converted mainly wet rice fields into cacao fields. In Lore Utara, coffee followed by cocoa are the most important crops although their productivity is relatively low. The importance of the factor “education” concerning land use, prosperity and foresight is exemplified in the village Pandere. The discrepancy of the educational status between the hamlets reveals itself. While migrant families from North Sulawesi invest in their children’s future, locals think restricted to a basic education as their children will become farmers anyway and thus do not need to “waste” their time at a higher school while they can help on the family’s fields. In addition, cultural traditions and their conservation or reformation by the village leaders influence land use individually from village to village. In Pandere, the local’s council of customary law (*lembaga adat*) banned the use of the sickle that was introduced by migrants and thus slowed down the productivity of rice cultivation. The *lembaga adat* of Wanga decided in cooperation with a local NGO that *tanah adat* that the ancestors’ land shall not be cultivated but conserved as cultural relict.

Not at last, interaction of the villagers with the national park also differs between sub-districts and between villages. Generally, the Western border (Sigi-Biromaru, Kulawi) of Lore Lindu National Park is less violated than the Eastern margin (Palolo, Lore Utara). If village territories content additional forest that is not bordering the park, like in Northern Kulawi, or if climate conditions are less suitable for extensive cultivation of the cash crops cacao or coffee, like in Sigi-Biromaru, violations of the protected forest area occur less intensively. In Wanga however, this general distinction get more complex if one rises the question of who converts protected forest land into fields. It is not the villagers of Wanga who enter the park but those of the neighbouring local and inter-island resettlement villages that were built on parts of Wanga territory. However, as the example of a program to reprocess fallow land in Bolapapu shows, if easy accessible land outside the national park becomes scarce, village policy for example decides in which direction such a problem gets solved.

The above-specified examples reveal the difficulty of producing a view that converges to the real situation of the cultural landscape in the vicinity of Lore Lindu National Park. Development of settlement structures cannot be explained without focussing migration

patterns or cultural settings. An appreciation of processes in land use needs the consideration of political decisions, customs or external influences. An answer on the question of the stability of the rainforest margins is depending on all of those variables, which, at the end, are all based on the acting of individuals. This study proves that society itself is the major driving force of the genesis of the cultural landscape "Lore Lindu region", and as divers society is structured as divers is the cultural landscape, in terms of space and in terms of time.

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